Tara Marisa Woudenberg

EYE INSIGHT

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EYE INSIGHT

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14th of July 2011

For

❤ Ed de Louwere & Jeremy Hendriks ❤

ALIVE

Expand growth

Experience gratefulness

Entering with grace

Expecting nothing

Welcoming everything

Seduced by open doors

Keeping my soul satisfied

With concentration and focused movements

Moving in sharp and scratching lines

Sometimes beyond the known knowledge

To understand someday

Because its importance

Will arrive

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With the shared love of **L**ouisa **L**eonora **L**emasian and **B**ertus **W**oudenberg

My brother **K**aroenja **O**tto and **I** exist

❤

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↻ **O**rbital **9** ↺

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Kojiro Toyoda (JP)

Luis Manuel da Costa Afonso (PT)

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It is a great pleasure to meet you all in this unique adventure, we shared many beautiful, difficult, crazy and funny experiences. I wish you all an enlightened now

❤

Lovely little garden house where I safely trans-mutated into myself

RESUMO

O objectivo desta pesquisa é o de ganhar uma maior compreensão sobre a linguagem científica. Símbolos negros e representações do mundo natural são utilizados para comunicar pensamentos complexos em várias dimensões. Através do processo de purificação eu comunicava com a confusão, e o privilégio de ser ignorante tornou-se a minha inspiração. O meu novo eu é como os alquimistas; investigar em novas dimensões, onde símbolos e imagens existem para compreender o sempre envolvente desconhecido. Com vidro plano, silicatado sodo-cálcico criei símbolos de vidro sólido. Através do microscópio olhei para amostras orgânicas e amostras de vidro que eu produzi e registei o que vi. Cada detalhe é uma parte indispensável de um importante todo e perceber é a chave para entrar em novos universos. O meu encontro com a ciência deu-me as ferramentas para desenvolver uma maior consciência para investigar porque e como estou a produzir arte. Estou convencida de que artistas e cientistas são semelhantes ao verem o universo de formas únicas e específicas. São apenas as representações dessas visões que são redigidas em línguas diferentes.

Tara Marisa Woudenberg
July 14^{h} 2011
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ABSTRACT

The purpose of this research is to gain more understanding of the scientific language. Black symbols and representations of the natural world are used to communicate complex thoughts in various dimensions. Through the process of purification I communicated with confusion and the privilege of being ignorant became my inspiration. My new self is like the alchemists; investigating in new dimensions where symbols and imagery exist to comprehend the always-surrounding unknown. With soda-lime and flat glass I created solid glass symbols. Through the microscope I looked at organic specimens and self-made glass samples and recorded what I saw. Every detail is an indispensable part of an important whole and perceiving is the key to entering new universes. My encounter with science has given me the tools to develop a greater awareness to investigate why and how I am making art. I am convinced that artists and scientists are similar in seeing the universe in unique and specific ways. It is only the representations of those visions that are phrased in different languages.

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INTRODUCTION

Essential expression

I was raised in my father's language, Dutch, intermingled with the Malay songs of my mother. In daily life I express my logic thinking in Dutch. The Malay language is connected with my feelings. The sound makes me feel at ease. Every morning all the children of 'De Rommelpot' sat together in a circle on wooden blocks. The class was composed of young, older and more experienced children. We listened, laughed and learned to ask questions so as to gain profound understanding about the adventures of fellow classmates while reflecting open body language. It was essential to do all this without judging, without giving opinion or advice so that the value of the story remained. This wisdom is my foundation for acknowledging other people.

The school protected me with a peaceful environment where I experienced and engraved the first signs of life. I was taught to create from within myself and I was stimulated to become inspired by my surroundings. In a playful way I developed my own imagination. [1] Accompanied by the teachers we discovered basic knowledge, performed in-round acapella songs and visualized our perspectives on the world around us. Friday afternoons at the seclusion of the school week parents, grandparents, aunts and uncles gathered in the auditorium. Everybody watched us on the school's stage and applauded when we proudly finished the song, performance or spoken word. It was a feeling of security, trust and freedom to be taught how to connect with others and to persevere in new, complicated and inspiring tasks. Patient teachers guided me when I repeatedly did not understand the math problems. They carefully pushed me on the path of courage to find confidence in my own abilities and showed respect by treating me with a positive approach to ignite my qualities.

On the fifth of August 1999 carrying much ignorance and a great thirst for knowledge, I entered "glass studio De Oude Horn". [2] The loud and sensitive sounds of country singers like Dolly Parton and Johnny Cash were escaping through the broken windows. My former master Bernard Heesen and his former assistant IRIS both knew how to generate a secure environment. I could experiment freely and I searched for constant challenges. Here I built the foundations and constructed the focused confidence in finding my own style of expression. This is the basis of 'Happily blowing glass', the matrix of my glass knowledge. Willem Heesen (1925-2007) gave birth to this unconventional glass laboratory where experimentation and serendipity brings artists and glass together. In this unique incubator I learned to move with hot glass, standing proud in the tradition of De Oude Horn who symbolically pushes the arms of the mill against the stream. (Figure 1) I am grateful for the teachings

of my masters, the pioneers of free glass art.

When I was nineteen years old I started to travel alone, absolutely focused on my artistic development and my profession as a glassblower. Fascinated with the movements of hot glass I embarked on glass-expeditions to many countries (Australia, Belgium, Canada and Czech Republic, England, France, Guadeloupe and Italy, New Zealand, Portugal, Sweden and USA). My choice of directions was guided by the urge to learn the language of glass. These glass-expeditions refined my glassblowing skills and my knowledge about managing a glass studio. I learned to work with the eccentric characters of glass colours and participated in teams from different cultures and underwent their specific technical ways of working. I developed my social skills and enlarged my ability to communicate. In trying to understand the meanings of words, new sounds and intonations my perseverance was constantly tested. It was a wild experience to meet, in a period of twelve years (1999-2011), many masters, teachers and students in secluded, crazy, sometimes dangerous and often very beautiful places, like here in Portugal.
The language of glass is a language constructed from fluid movements. When glass is freshly gathered on the blowpipe or punty (±1.5 m stainless steel rod) it moves in a unique way. From the moment the blowpipe slides inside the glass furnace and touches the surface of the hot glass, I shift into a state of mind where I feel complete. Working makes me happy. I have to join my own movements with the movements of the hot glass. For me the synergy with glass is the maintenance of a long friendship. The sharp characteristics demand focus and honesty otherwise I will be cut, burned or the work shatters. Through much suffering I gained respect for glass and I have found my creative freedom and the ability to make authentic work.

It is the second of October 2009 and today, accompanied by eight new colleagues from Canada, Finland, France, Japan and Portugal, the first chemistry class starts as students of the Master of Glass, Art and Science enter a new course of study. Our professor Fernando Pina, graduate in chemical engineering, PhD in photochemistry and professor of chemistry, is spontaneous and profoundly concerned about sharing new knowledge. His passion for chemistry is vibrating rapidly out of his body. He is our guide on this initial journey into the world of invisible atoms, the building blocks of all matter. In an energetic and dynamic lecture he shares with us his beliefs. The way in which professor Pina sees the world is for me a new way of perceiving. I am deeply grateful that he abruptly ripped my new eyes open.

His perspective is from within matter, being inside the matrix of everything that surrounds us and consequently from what we are made. Neutral neutrons, positive protons and the probability movements of negative charged electrons in their own large clouds are explained as being the Lego blocks of life. Orbitals are the apartments around the nucleus with the uppercase letters S, P, D and F as levels and fixed spaces for the electrons to occupy. Vowels and consonants are used alone or in pairs accompanied by numbers dangling in subscript or floating in superscript. Strange and familiar symbols are taking over the void to become a whole, known as chemical reactions. The transformation of atoms and molecules into new substances and the movement of energy at various velocities are represented by symbols pointing in specific directions. [3] On the blackboard I see connected drawings growing like chalk constellations in the universe of a new language. (Figure 2 - 3) The amount of symbols reflecting off the blackboard creates a confusing chaos in my head. Professor Pina tells us to "*be aware because everything is always moving"*. I close my eyes with a smile and feel the vibration of the just spoken sentence moving inside my confused, inspired and freshly enlightened self.

I am an observer, a sensitive human being and an explorer who experiences new discoveries with a childlike astonishment. By not knowing I am assured to know, because the sense of being astonished with something I have never seen before makes me see much more. I carefully transform my everyday experiences through the purification processes of absorbing, separating, fermenting, distilling and coagulating. (Figure 4) [4] With an acute awareness and the concentration of a scientist I curiously and thoroughly shape the tunnels of my own confusion. I am searching for my visible explanations of feelings while I am wounded and scarred by ignorance. My work is not a scientific project or a chemical reaction written on a blackboard, though it contains important aspects of them. I am constantly absorbing and unraveling new information. This helps me with recognizing and navigating through existence. I deal with the feelings of confusion in an optimistic way while I enjoy and try to live consciously with the unexpected.

All the gathered information is transported to different sections of my mental library. The new information that confuses, astonishes and inspires me spirals further into transformation. When an idea appears in my head, I don't know what it looks like, and therefore I have to make these thoughts manifest. By transforming the idea into a tangible object that I can hold, turn around and transform again, it helps me to understand what I think. This empirical working method is my way to clarify, to extend and to change the process of researching. The fermentation process contains many questions to clear the veils from the essence of the artwork. Experiments are executed to visualize answers. In

order to respect the knowledge it brought me, destruction is necessary. I break and throw away my work because the answers to move further are more important than the physical form. The mental, visual and spiritual knowledge is ready to be distilled. The purification process continues and the artwork is now part of my reflection. I gain wisdom and more ignorance in the coagulation stage, everything becomes as a solid. It is the time when the conceived artworks become independent. This is how I communicate and my art is the visual and symbolic language that I use to express what I cannot say in words. (Figure 5)

I am positively trans-mutated by the experiment Glass, Art and Science. My new self is like the alchemists; investigating in new dimensions where symbols and imagery exist to comprehend the always-surrounding unknown. [5] I am curiously wondering in a new dimension where I am again fascinated by what glass is. I look with new eyes and see a new matter. Science taught me that nature is knowledge. Experimenting and utilizing the yet experienced is important to access this information. My inner awareness has increased and is matured through being more receptive to nature's wisdom. This understanding appeared at the crossroad where art and science communicate. [6] The signs on my path guided me through this profound and exceptional expedition. I evolved from an explosive kid to a more patiently observing and self-assured grown-up. Alchemy is a circular self-contained process represented by Ouroboros, (Figure 6) symbolizing the union of the sun and the moon. I am walking happily on the ancient path of spiritual purification and transformation. The expansion of consciousness has taught me to be grateful for everything that life genuinely gives. "*The mind is like a parachute; it works much better when it is open."* [7]

In a new environment with new teachers I utilized all the acquaintances, confrontations and boundaries of values and beliefs to develop important insight. This insight has given me knowledge about who I am and how I perceive. Everybody sees the world in his or her own specific and unique way therefore it is important to respect this by being aware of that inevitable difference. My heart feels at ease when I follow my sensitive intuition to connect with what surrounds me. Intuition is an important tool for feeling the infinite vibrations of everything and to make choices that are beneficial for a happy life. Asking 'why' is the key to enter the immense knowledge of the universe, the answers are given to us unconditionally. Imagination provides me a safe and stable place to create new work. I ignited an experiment within myself that aims to extract and simultaneously radiates the light that I have in me.

EXPERIMENTAL DESIGN

Materials and Methods

From October 2010 until May 2011 ten experiments were completed utilizing the Research Unit "Glass and Ceramic for the Arts" – VICARTE, 305 laboratory Microbiology 1, 045 painting laboratory, Orbital 9 studio of the master for Glass, Art and Science and the grounds of the Faculty of Science and Technology that is part of the New University of Lisbon in Monte de Caparica, Portugal.

Furnace work:

1. I created solid glass symbols using soda-lime glass. The glass symbols were covered with layers of coloured glass that reduce in an oxygen-free environment. The coloured frit and powders are from Friedrich Farbglasshütte Kugler Colors. I used black K054, opal black K095 and copper ruby light K016, copper ruby dark K015, steel blue K043 and silver brown. In the electric kiln I slumped the glass symbols into flat symbols. With a diamond saw I cut the symbols into smaller pieces to assemble new symbols. They were fused in the electric kiln undertaking different time and temperature curves. To obtain symbols that appeared to be made of metal with an ancient character, like stones rounded by the rolling ocean, the cutting and fusing-procedure was repeated frequently. All the symbols were fused together into glass drawings of approximately 125 cm long, 40 cm wide and 1 cm high. (Figure 7)

2. I made glass shapes from soda-lime glass using the colours sahara K162 and black K054. The glass gestures were slumped in the kiln and the new flat gestures were fused together into a 125 cm long, 66 cm wide and 1 cm high glass drawing. I held this drawing in the sun and its shadow appeared on the wall. Two-dimensional lines in grey shades where reflected on the white wall when I moved the drawing slowly up and down. (Figure 8) Images of the experiment were recorded with a Sony x290 digital camera.

Light microscopy:

3. Biological material — I studied three fungal specimens and three different plants. In the studio of the Orbital 9 a *Penicillium* species was grown as a contaminant on orange juice contained within a hand-

blown glass sphere. The *Botryosphaeria* species was a natural specimen on an oak (*Quercus* sp.) twig. Leaf litter was collected from under *Acer* trees and incubated in moist chambers for 5 days. I examined the specimens initially with a Leica MZ90 stereomicroscope. The samples were dissected out and mounted in 100% lactic acid on glass microscope slides. A coverslip was applied and the preparation pressed lightly before sealing with clear nail varnish.

4. The plant specimens were a dandelion leaf (*Taraxacum officionale* – a dicotyledon), a grass leaf (*Avena fatua* – a monocotyledon) and a moss leaf (*Bryum* sp. – a bryophyte). A small square (3 mm^2) was cut from the dandelion and the grass leaf, mounted in a drop of lactic acid on a glass slide. The slide was heated over a spirit lamp until the leaf segments were completely colourless and transparent. Excess lactic acid was removed, a coverslip was applied and the preparation was sealed with nail varnish. The moss leaf was mounted in lactic acid, heated gently for a few seconds before applying a coverslip and sealed with nail varnish.

5. Glass samples — I examined three samples. Two samples where composed of beach sand, potash and seashells and one sample was made from beach sand and potash. 1cm^3 samples were grinded into thin segments of 1mm, 2mm and 3mm on a diamond wheel nr. 80. I had to take care that the upper and lower sides were parallel. The segments were mounted in a small drop of Leica immersion oil, a further drop added to the upper surface and a coverslip was applied. Because of the thickness of these preparations they could not be sealed with nail varnish.

Microscopy — All samples were initially examined with the stereomicroscope using both transmitted and incident light. The quality of the preparations was assessed and fresh ones were made when necessary. Digital images of interesting features were taken with the Leica DFC 300 camera mounted on the microscope and images were captured and archived in the Leica IM 500 database. Objective lens magnification and specimen details were recorded at the time of image capture and stored with each image.

Specimens were then examined at higher magnifications with the Leica DMR HC microscope equipped with Nomarski Differential Interference Contrast optics (DIC), phase contrast, and bright field. The light path was set up for Köhler, or critical illumination. The slides were first scanned at low magnification with the ×10 objective before detailed examination with the x20, ×40 or ×100 oil

immersion objective lens. Images were recorded with the Leica DFC 320 camera attached to the microscope using the same procedures as were used for the DFC 320 camera.

6. Experiments were made with the Leica drawing tube, also known as a camera Lucida. This piece of equipment was designed to enable accurate drawings to be made. It integrates within the light path from the objective lens an image of the area of bench top adjacent to the microscope. By looking at the specimen through the eyepieces the observer's hand can be seen superimposed. Thus, it is possible to trace onto a piece of paper the outline and details of the specimen, resulting in an accurate superimposed on the image of the specimen – leading to all sorts of amazing possibilities.

7. With the microscope Zeiss Axioplan 2 imaging, surface images of different glass samples were recorded with a digital Nikon DXM1200F camera and archived with ACT-1 software. The first glass sample of $1cm^3$ was composed of beach sand and potash, the second sample of $1cm^3$ was composed of beach sand, potash and seashells and the third sample of $1cm^3$ was composed of beach sand, potash and limestone. All were made in the science project 'Understanding the Origins of Glass'. The glass samples of reduced and frequently fused symbols I observed using reflected, transmitted, UV and halogen light.

Drawings:

8. With different pencil hardness's I made vibration drawings. The probability movements of electrons inspire these drawings. I draw lines, representing movement for me, they connect many points spread over the paper and every line has its unique way. First I drew on poor paper and eventually on high quality paper. Seemingly mechanically produced constellations appeared due to the consistently spikey and consistent character of the lines. I developed a series of drawings connecting new symbols with lines that are creating a journey through my own eyes.

Mirror writing:

9. On the blackboards that I made in the Orbital 9 on the wall and on the door I wrote in mirror writing with white chalk words like: 'laitnesse', 'ssenerawa' and 'noitartnecnoc'. On three mm thick plate glass I painted uppercase letters in mirror writing with FAB BG 7319 low fire cadmium red glass enamel.

(Figure 9) To create round edges all the four sides of the glass square were ground on a diamond wheel nr. 325.

Collecting signs:

10. I found and simultaneously I started collecting tree twigs and eye-catching shapes in plastic, iron, paper and stone. These signs created the base for my new language. On three-millimeter plate glass I painted my new signs with FAB BG 4110 low fire black glass enamel. (Figure 10) All symbols were one by one cut out of the plate glass with a GIMINI Saw Company, INC. diamond saw. With hot glue I attached the symbols to the wall creating the drawing Mother EYE.

All these experiments were made without the thought of being reproduced and all were conducted without proposing any hypothesis to be tested. The reason for this scientifically unreflective way of working is my spontaneous being that needs to act before thinking about what might be the result and implications of the action. Also my curious urge to know the unknown moves me in not thinking patiently about what I should expect. All the executed experiments are of an absolutely critical value for the evolution of my artwork shown in the thesis exhibition EYE INSIGHT. Without these experiences I could not have obtained the knowledge about the form and the content of my graduation work for this Master of Glass, Art and Science.

RESULTS AND DISCUSSION

Meeting the inhabitants, I am automatically confronted with the language they speak, the visions they project and thus exciting new ways of utilizing and transmitting information. From out of their peculiar perspectives dressed in white cotton coats, oversized plastic safety glasses and latex gloves scientists' are researching. With lots of necessary patience they ask questions about the details within this big universe. I don't understand the language that they speak. I have never entered the matrix of the natural world represented in two-dimensional scientific drawings and three-dimensional deductive and empirical experiments. The visual and verbal language is overwhelming and it crashes powerfully inside my brain. I can easily relate to the necessary urge of being in my own world curiously exploring the hidden paths of what I don't know. Inside this scientific universe the understanding of systems with fixed functions is a must to be able to survive. Here the imagination level is high and is used aside the holy facts of knowledge and the urge to know. Compulsive curiosity is breathing here. Everything is focused on the next question until the point where the next answer is the question. Intentionally I choose to be in a very interesting dimension where I want to understand what is said but I cannot. Inside this complex universe the confusion and the privilege of not knowing fascinates me and simultaneously inspires me to make art.

Transparent matrix

The science project Understanding the Origins of Glass is where my colleagues Jamie Wilson Goodyear from Canada, Kojiro Toyoda from Japan and I touched the inside of the minds of the first glassmakers. (Figure 11) We were searching to satisfy our collective desire to know what we melt, shape and cut into forms of our unique expression. This project gave us the opportunity to consider how our ancestors used their ingenuity in developing glass. We used the raw materials: sand, natron, and potash, soda ash, limestone and seashells provided unconditionally by our universe. We gained a more specific and intellectual understanding of this versatile and challenging material by having a taste of what ancient glassmaking possibly felt like.

Imagine the dominant and penetrating sound of sand particles being crushed into a fine powder in between the determined rotations of a mortar and pestle. Sand is the main provider of the network-former silicon dioxide (SiO_2). The network that is formed has an open, amorphous and flexible

arrangement. All the silica structures have the shape of a tetrahedron where on the four corners dangle oxygen atoms. [8] I could never have imagined that inside a silicon system geometric shapes exist. This information directly made me want to travel through the atomic glass world. Here, we are looking carefully with a magnifying glass inside this intriguing, mysterious and transparent matrix. The bonds of this network, the bridges that connect the silica and the oxygen atoms, are very strong. Those bonds can only be broken when the melting temperature is very high, between 1600ºC and 1725ºC. [9] During the preparation of the raw materials it is of great importance that all of them are ground into a fine powder to homogenize the pre-fired composition, this will make the melting process more rapid and creates a more homogenous end result. A new world literally opens in front of my eyes while gathering the sand from Caparica beach, Fonte da Telha dunes and the forest of Marinha Grande, and by touching and preparing the different elements with their own properties, behaviors and hypothetical interactions. For more than a decade I worked with glass and I never asked myself what it truly is. Surrounded by floating and crushed sand particles I feel that science has given me the shiny key to open the huge door of opportunity to see glass as a new matter.

A ternary glass system consists of a network former, a network modifier and a network stabilizer. An ancient salt mixture and network modifier is natron. It provides sodium oxide (Na_2O). The function of a modifier is to break the silicon-oxygen bonds and forces the glass forming network to open up. The melting of the glass composition is now reduced from the very high 1600ºC and 1725ºC to a more achievable temperature around 1250ºC. [10] The unseen world of atoms in a glass network is represented by small black dots attached to thin sticks of different lengths connecting small white circles outlined in black, organized and arranged in a seemingly chaotic pattern. [11] For the first time in my life I observe glass in a two-dimensional scientifically represented way. It seems to be extremely flat.

Without warning I am drowned by my own ignorance and I struggle to comprehend why I cannot recognize the material that I thought showed me much of its character already. The network modifier makes the opened up silicon-oxygen network instable. From wood ashes we extracted potash this provided us with a second modifier, potassium oxide (K_2O) and from marine plants we extracted soda ashes that provided us with Na_2O. In a glass beaker the ashes are submerged in water, mixed thoroughly and left to rest for fifteen minutes. We use suction filtration to separate the sediments from the ash particles. The two remaining salt-rich liquids are dried very slowly to obtain the crystals. Very

hygroscopic alkaline potassium carbonate (K_2CO_3) and sodium carbonate (Na_2CO_3) are stored in airtight containers until they are added to the pre-fired composition.
I am confused again. It is this transparent world that triggers my imagination. The fact that representations in the invisible world are created even though nobody knows exactly how they are constructed only works to further my curiosity. I imagine that I "*transform into a particle of light"*. [12] I enter inside the landscape of the glass world, gently touching the surfaces of silicon, oxygen, sodium and potassium atoms. I perceive the molecular architecture of glass, nobody has ever been here before. (Figure 12)

Limestone and seashells provide the network stabilizer calcium oxide (CaO). Network stabilizers attach to non-bonding oxygen molecules and make the glass network strong, stable and chemically resistant against nature's elements. [13] During the science project my colleagues and I made alumina crucibles using the "Experimental protocol: alumina crucibles processed by slip casting" developed by C.A. Queiroz, PhD and researcher at the Research unit "Vidro e Cerâmica para as Artes", FCT/Universidade Nova de Lisboa VICARTE. Inside these tiny crucibles, reproduced from a 50ml glass laboratory beaker, all the raw materials, divided into eighteen different compositions, were melted in six hours at 1300ºC, with a ramp-up of 5ºC/min. and naturally cooled. The second firing was at 1400ºC for six hours and followed the same ramp-up and cooling procedure as the first firing. When I am trying to understand how a ternary glass system is constructed I use my imagination. Combining the acquired shards of scientific knowledge brings me closer to visualizing the building blocks of our universe.

Microscopic insight

'Ripping through Space' was my theme of expression from 1997 until 2009. In this period I worked consistently with a deep fascination, an astute observation and an eternal love for cracks, wounds, blood and scars. I am strongly influenced and moved by the lines created by nature's forces. By investigating intensively the perfect imperfection I was able to build a large body of work in glass, drawings and photographs.
So, from the moment my ears received the three sounds: "*Beauty in Decay*" in the introduction of Márcia Vilarigues, the director of Research unit VICARTE, I instantly realized that Alan J.L. Phillips and I are meant to be together. Alan is a Phytomycologist. The main thrust of his research is to

understand the relationships between pathogenic (microorganism that causes diseases) and non-pathogenic fungi, the chief decomposers of the earth. A layer of merry illumination shines off him. Our connection has the comfort of timeless friends and we curiously explore and energetically exchange our visions about the diversity of many dimensions. Alan uses light microscopy to reveal the distinct and beautiful forms of fungi: their spores and their sexual spore-bearing cells, asci.
He is a *Homo ludens*, Playing Man, who excitedly craves to see powerful microorganisms, while passionately striving to perfect the art of photographing them. (Figure 13) The bridge between the microscopic reality and the macroscopic presence is the micrometer or micron represented by the symbol μ, mu. It is a prefixed sign in the metric system indicating a factor of 10^{-6}, one millionth of a meter! Micron comes from the Greek mikrós (μικρός), meaning 'small'. In this world all your eyes need to be open. The norms are magnification, controlled movement and precise focus.

I follow Alan into a cool and white laboratory where I see uncountable glass test tubes filled with brown structures arranged in rows and placed in boxes with orange lines. Transparent towers of condensing cell culture dishes are standing in a corner. Scientists in white lab coats and latex gloves smile to me. Steaming cooking pots are carefully opened and laptops show colourful graphs and black symbols.
The microscopes Leica DMR-HC and MZ 95 with their cameras DFC320 and DFC 300 on top are protected with plastic coats, one translucent and the other a bright Ferrari red. Using them I am going to be an intimate witness on an adventure through the planes of miniature universes. Before my eyes gently touch the two clean eyepieces that will lead me towards the enlightened tunnels in a new depth of focus we prepare our sample with patience and care. With exquisite eyesight a piece of *Botryosphaeria* fungus is removed from the *Populus nigra* var. *Italica* twig. The inoculation wire, a slender tool with a crooked hook of bent metal, tears the fungus in smaller pieces. This very small organic system is placed on a glass microscope slide. A drop of $C_3H_6O_3$ (lactic acid) is added to fix the structure of the sample. This definitely assures that the fungus is dead and creates good optical properties with its refractive index. A small and very thin square glass coverslip is gently placed over the sample, air bubbles are not welcome and are pressed or carried away. The coverslip is surrounded by transparent nail varnish and the subject is ready to be observed. [14] I take off my eyeglasses to see clearly what I cannot see with my naked eyes. I am ready to be surrounded by my discoveries of micron size and I wish I could constantly wear a microscope to amplify my sight.

Optical microscopy involves passing visible light (transmitted through or reflected from the sample) through a single lens or multiple lenses to create a magnified view. The thinner the sample the more the light can shine through and the detailed view of the morphology enlarges. It is very difficult to focus and many layers of watery looking bluish, grayish and practically transparent substances are moving in front of my eyes. I see ten microns small! Alan tells me that I am looking at the sexual spores, ascospores, of the Botryosphaeria. It is impossible to comprehend that inside of this miniscule watery, wavy and three-D movie like organic system new fungi are growing. Astonished and speechless I move on. I can now relate to the excitement Antony van Leeuwenhoek must have felt when he in 1676 discovered many thousands of living creatures in one small drop of water. The landscapes that I see are exquisite and the micro world shows me that the universe is engraved everywhere. I realize that every detail is an indispensable part of an important whole. [15]

I see patterns on a 0.2 millimeter piece of leaf. Cream coloured lines are crisscrossing over a dark and leathery looking surface, they remind me of ice-skating tracks on a frozen pond. The lines have sections that are cluttered like freshly spun wool can be. The surface of my first and deliberately chosen twig is lightly but totally covered with white and hairy fungus. The creases in the stick look like the folded space between a hand and the underarm of a well-fed baby. It is interesting to see how organic systems are similar to each other when focused upon. The studio grown *Penicillium* reminds me of my imagination of atoms. Many round transparent egg-shaped particles with yellow, green and gray-coloured edges are floating in big groups. By moving through the planes of this specimen I see that the 'atoms' are coming out of bottle shapes and they are attached to long transparent tubes. Sometimes I see an empty gray space knowing that its vastness is very small.

A field trip with Alan J.L. Phillips is a lesson in being conscious about every universe. Each universe has its own universes and those universes have again their own universes. We roam through the long grasses discovering new worlds inhabited with many species of organic systems. In the moss leaf, Bryum sp. – a bryophyte, the epidermal cells are arranged in a linear manner aligned with the long axis of the leaf blade. The green balls captured inside each epidermal cell look like green shriveled peas. I see a stream of bright yellow and orange with stripes of bluish-purple, it looks like magma climbing up the vent of the volcano. In the dandelion leaf, dicotyledon, *Taraxacum officinal*, the epidermal cells are in a seemingly random arrangement like a jigsaw puzzle. The edges are standing out and are creating a wall, I see the shadow on the cell floor. Many planes move in front and away from my eyes. I see these planes as the real 'scientific' two-dimensional representations of the natural world. With reasoning and asking questions concerning what I see, my brain creates a three-

dimensional picture. I never thought that I could see the spiral thickened xylem vessels in a dandelion leaf! The spiral delicately spirals in its golden environment transporting the essence of life. Movement, clarity and divine beauty are what this world is showing me. Without completely comprehending what I see though being totally focused, I now understand the importance of being aware of details.

The camera Lucida, Latin for light chamber, is attached to the microscope. With this drawing tube I can simultaneously see the sample and my hand holding the pen above the drawing paper. This is amazingly fascinating! Making a drawing of what I see becomes now a very close interaction between the specimen and me. Looking through the microscope is no longer flying above the sample but more like carefully touching the small specimen. My body lays twisted on the white laboratory table with my face facing the black convex eye of the camera Lucida. I press 'acquire'. On the computer screen appears a person looking at the spiral in the vein of a dandelion leaf inside a prehistoric cave surrounded by painted symbols. To see my own representation inside a moss leaf, a dandelion leaf and a grass leaf makes me feel very happy. I was able to transfer the representation of myself inside an organic and amorphous system. It made me come closer in visualizing my awareness of the important existence of what is not seen. (Figure 14)

Looking with the microscope inside the self-made glass of the science project Understanding the Origins of Glass is fantastic! Every single detail is an important discovery. Because of the thickness of all the examined glass samples only the ×20 and ×40 lenses could be used. The surface of the beach sand and potash samples had a surprisingly similar surface like the dandelion leaf. A landscape of green and bluish-surfaces are surrounded by angular cracks lying side by side like a finished jigsaw puzzle. It was incredibly fascinating to move through the enormous number of planes, all with their own characteristic details. I admired rows of enlightened and perfectly spherical bubbles, swirls of incompatible raw materials and inclusions with dragonheads, fish bodies, and horsehead shapes. Symbols in solitude are seemingly floating above an entirely crackled surface and shiny crystals shaped like pine trees are fighting for a space in the glass forest. I arrive at a place where the surface is covered with short and focused traces in a rhythmic pattern, like Michelangelo Buonarroti's traces in David hewn out of white Carrara marble. Cracks are surrounding the area and creating the shape of a heart. I am astonished!

Being guided and inspired by Alan J.L. Phillips changed my perception of the world. In a mutually respectful way and with trust we worked with almost invisible objects. Patiently he shared his knowledge while showing me how to operate the microscopes. His wisdom is now part of the

fundaments of the enlarged view my new eyes obtained. Perceiving is the key to entering new universes.

Confusion

In the Paleolithic era of the Stone Age hands, hearts and minds laid the strong foundation in human existence: the birth of visual communication. The observed was represented on cave canvases using minerals for ink. The early humans conceived the first symbols and signs and represented their lives in a diversity of lines. Seventeen thousand and three hundred years ago the stimulus of experiences was converted into impressive images, which until now human beings are touched by. Lines made with the fingers by repeatedly moving over soft areas, black dot clusters and colourful figures are engraved leaving modern man curiously in search of their meanings. [16] My ancestors gave me the ability to observe, to reason and use the power of ingenuity. Because of these important qualities I have the urge to receive and enjoy new knowledge.

Symbols represent what the mind sees and thinks. [17] They transmit contemplation and theories. They give a specific identity and character to matter that we cannot see. We use symbols to create short messages consisting of compact information. For this purpose of identification we use letters, lines, and arrows, imagery, colours and sounds, hand-signals, facial gestures and body movements. We search for certainty to give precision to what is meant, rejecting confusion. The meaning of scientific symbols is universal, formal and fixed. [18] It avoids the inexactness of definition. To learn to speak a new language creates a new understanding. Fully grasping this understanding requires courage, passion and perseverance.

A new visual language appears everywhere where I look. Without a gentle introduction or a strong red warning I am confronted with new lines. I am forced to use their meaning in glass batch calculations, scientific literature and lecturer's arguments. My eyes and brain try to quickly process in order to understand the structure of this system where the symbols rule. The sound of speech is exchanged with lines of chemistry and technology functions as a friend you can rely on. It feels like learning to draw a movement for the first time with a certain pressure, size and direction. I am accepted in a new dimension where the infinity of the two-dimensional is seducing me. It challenges me to explore how to express my inspiration for the new knowledge that confuses me. The black signs that are used to communicate complex thoughts in various dimensions inspire me because I don't know what they say. The scientific language encourages me to write without knowing what I write. I write backwards on a

blackboard to see my own language in a different light, increasing my patience for deciphering what is not the usual. Familiar letters are changing into lines that represent my feelings of confusion and confusions love for my ignorance. The absence of knowledge is moving me. I walk around with floating symbols in my head. I feel the wind touching me, it make the trees drop their symbols and I collect the ones that are talking to me. Nature throws sticks in particular shapes before my feet to show me direction, like a drawing growing in a white paper field.

"The real voyage of discovery consists not in seeking new landscapes, but in having new eyes." [19]

There are times when I close my physical eyes and focus only on my breathing. I waken my third eye and see the inside of my inner world. It makes me calm and highly aware of the importance of every being in this universe, rooted or loose. The third eye is also known as the eye of knowledge, where the teacher of our inner self communicates with the core of our being. To feel in harmony with the universe is divine love for me. The awareness of and the ability to feel and see the movement of all the different vibrations that everything possesses. Through communication we share our experiences and feelings to benefit others with knowledge that is ignited from our honest hearts. My new work Mother EYE is the reflection of the insight that my eyes see when I look inside of me. It represents the opening to freedom, creation and enlightenment. (Figure 15)

"Knowing others is wisdom and knowing the self is enlightenment,
mastering others is force and mastering the self is strength." [20]

"The greatest gift is to give people your enlightenment, to share it. It has to be the greatest." [21]

CONCLUSIONS

Everything

Science encourages researchers to know. The urge for exploration surrounds them. The unknown is the road they curiously walk. Through hypothesis and patient experimentation they test their hypothesis to discover scientific proof. Observing is their passion and through questions about actions and reactions, perception becomes new knowledge.

Before I arrived in this scientific universe I followed my emotional viewpoint. My artwork included some reason, but this was derived from more technical decisions, like how to grind the base of a Flapsculpture far from straight or how to position Spacewatchers, hanging from thin wires in the air. The connection between my work and me was action, I expressed what I experienced during making. The knowledge to move closer to myself and to really see why I was making was something that craved for more development. I did not know that patience could enlarge vision. My encounter with science has given me the tools to develop a greater awareness to investigate why and how I am making art. Science is all about researching with a goal, the hypothesis, and dedicating life to investigating something that has many questions to answer or to broaden perspectives and to enrich the present knowledge about the universe. Science has taught me to become more aware of my actions by looking through a microscope, closely, to have a more attentive vision.

Like art, science also demands passion, dedication, perseverance and focus. Where they differ is at the juncture of interpretation. Science evolves to discover facts and to use that evolution to benefit the next generations. Art has the power to exist timelessly without having to be explained. Art is free to move any human being in a way we can only feel. We need art to express what we cannot explain in words. What we cannot touch, or prove. Where we cannot put our fingers on. And that, all the things we cannot put our fingers on, is a major and important part of every day life in this universe. Science is aware of the controlled action and has expectations of the likely reactions. With art there is more appreciation for the unexpected. Although researchers are open for unexpected reactions to move into a new direction, it is not to the same degree as with artists. In this way art and science are similar, it is not possible to know exactly what is going to happen. In my opinion the unforeseen is the best and most essential part of researching.

I make art to express my feelings about what I cannot say in words, scientists do research in order to objectively explain what it is they see. Through this intensive process where hands, hearts and minds have dedicated sweat, blood and tears the important thought process of making choices in the moment is excluded in the coagulation stage of the research. The names of the researchers and the report written in the third person are the evidence of human dedication. As an artist I don't understand that, my works are my children and I am their guide to independence. Artists are appreciated, honored and awarded for the work they give to the world. In the same way, I believe that the choices scientists must make, the patient and the hard work they do should be more subjectively reported in research papers. It is necessary to acknowledge the importance of the human beings who create new knowledge because without them, there is no research.

Another crossroad between these two important complex pursuits, Science and Art, is how they are connected to nature. Nature's knowledge is the inspiration for their existence. Without the universe we cannot ask questions about the universe. Without the universe we cannot rebel against it or worship it. Without the universe we cannot research in it. And without the universe we cannot strive to make it better or more beautiful.

All humans possess imagination. Like most artists, I have the ability to use my imagination to represent what I feel and therefore I can create visual knowledge. Scientists use imagination to interpret the unexpected, to visualize what they expect and to be prepared for what they don't know. Science is not possible without facts and the urge to know. Imagination is essential to look curiously at what the universe shares with us unconditionally. *"Artists are necessary to inspire and to fuel the engine of scientific creativity. We need to reveal the art, which I believe, lies at the heart of genuine scientific endeavor.* [22] I am convinced that artists and scientists are similar in seeing the universe in unique and specific ways, the representations of those visions are phrased in different languages. To survive in this universe I had to find a new way of seeing and thinking. I was competent enough to work with and to be inspired by the confusion and the clarity of this new language. A sunny happiness and a great insight is what I have achieved and I am ready to discover more of everything.

Figure 1. → Symbol of Glass studio De Oude Horn located in Acquoy, The Netherlands

Figure 2. → Probable constallation, 2011

Vibration drawing with 11 hot sculpted glass electron sculptures connected with consistently spikey white pencil lines on 4 m x 3 m blackboard

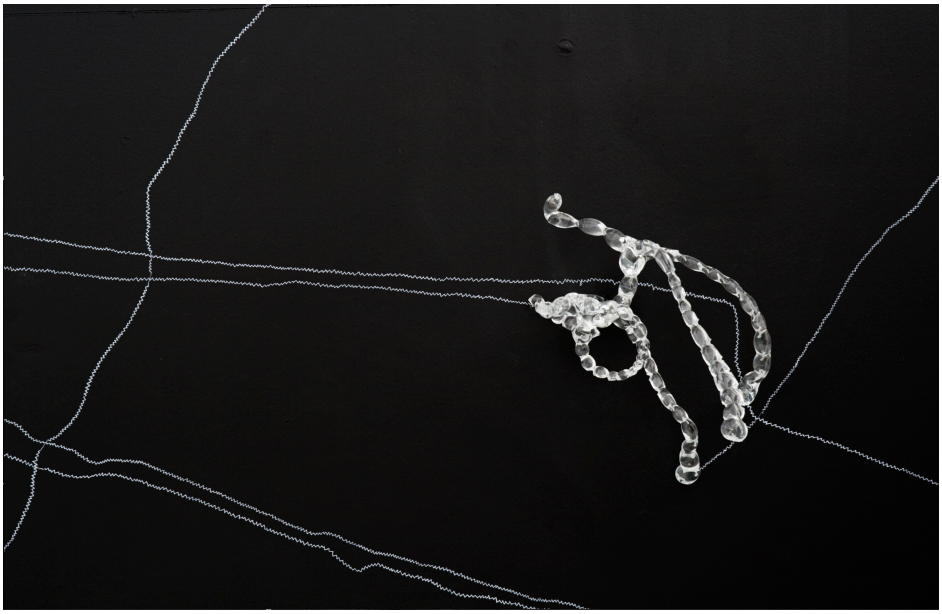

Figure 3. → Detail Probable constallation, 2011

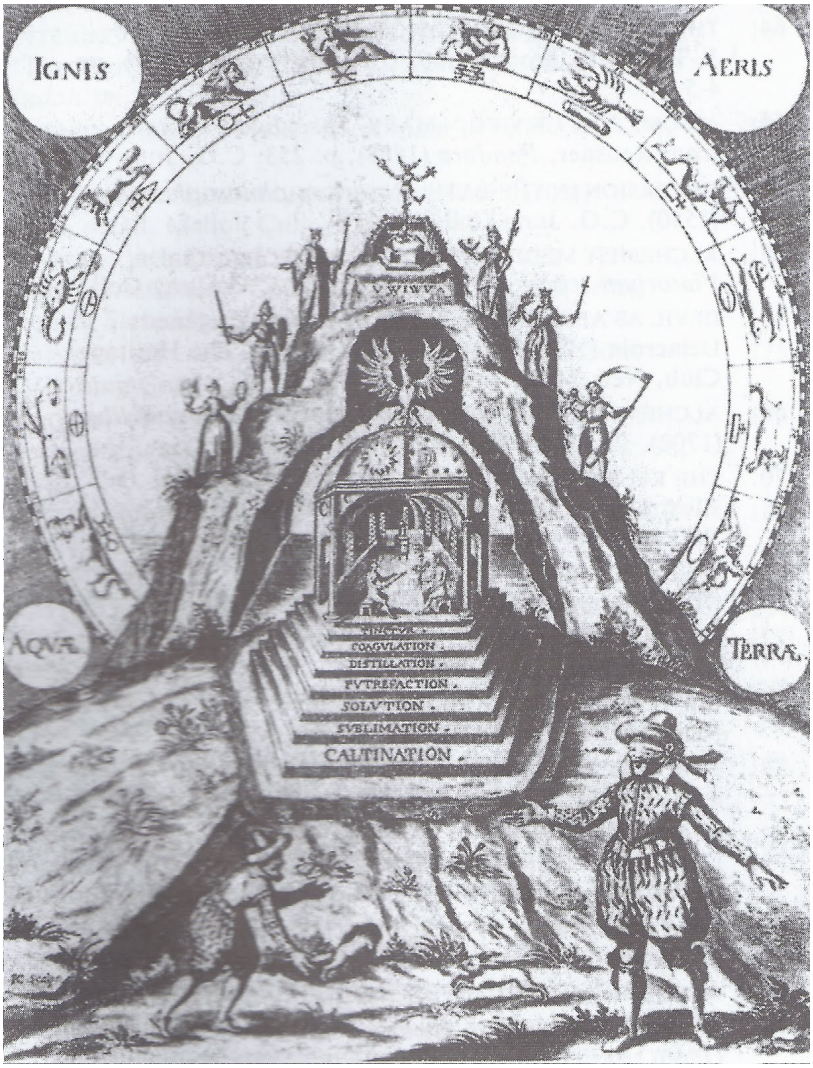

Figure 4. → Mountain of the Adepts, year unknown

“The process of psychological development is analogous to the alchemical stages in the transformation of base metals into gold -the philosophers’ stone- here represented as “a temple of the wise” buried in the earth. The phoenix, symbol for the renewed personality, straddles the sun and the moon (the opposites of masculine and feminine). The zodiac in the background symbolises the duration of the process; the four elements indicate wholeness. The blindfolded man represents the stumbling search for truth; the right way is shown by the investigator prepared to follow his natural instincts”

Marie-Louise Von Franz, Swiss Jungian psychologist and scholar

Figure 5. → Invitation thesis exhibition EYE INSIGHT 2011 LX Factory Ler Devagar galery, Lisbon

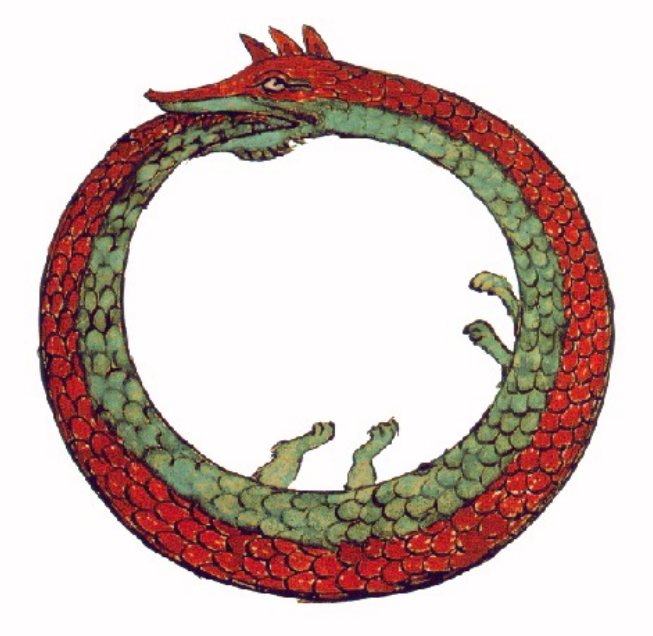

Figure 6. → Ouroboros
Drawing by Theodoros Pelecanos, 1478

Figure 7. → Detail INOCULATE, 2010

Total work is 125 cm long, 40 cm wide and 1 cm high

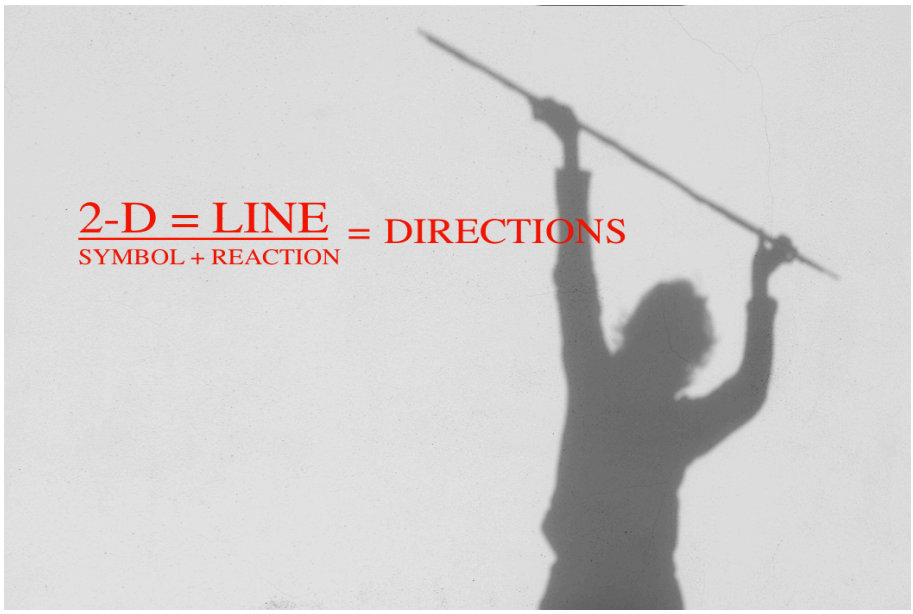

Figure 8. → Slide 5 from EYE INSIDE explorations presentation October 2010 - February 2011

Figure 9. → Micrographia poem, 2011

6 prints (4 are shown in this picture) of 85 cm x 60 cm showing organic and glass systems seen through the microscope and the camera Lucida. Uppercase red letters in mirror writing creating this poem:

EFIL EVOM
SNGIS LAITNESSE REVOCSID
EVIRRA SECAPS WEN
DNIM NEPO NA HTIW EVOL
? EYE ROUY SI TAHW
DENETHGILNE MA I

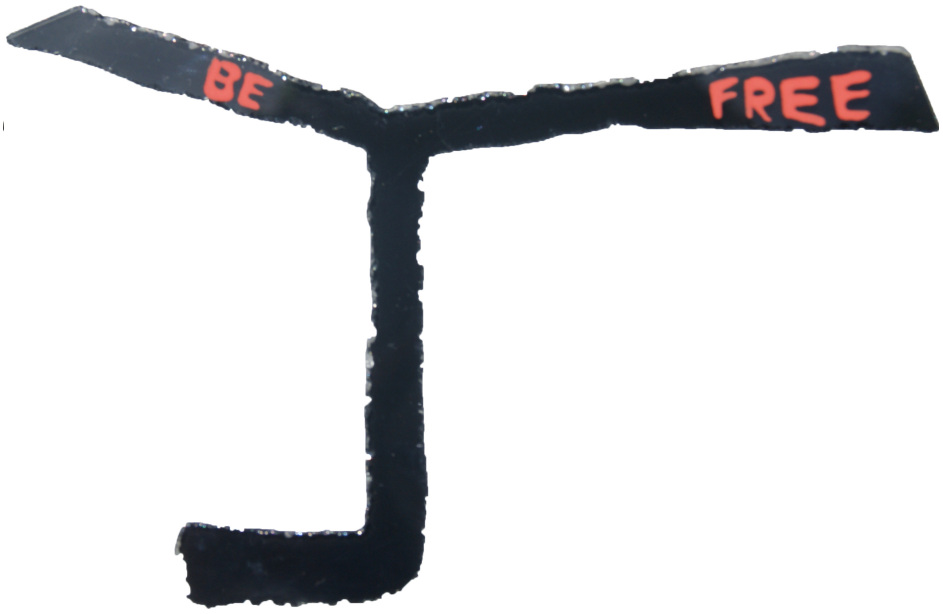

Figure 10. → Symbol BE FREE, 2011

Figure 11. → Detail

$$3\ \text{[brain]}\ \left[\frac{18}{8}\,\text{w}\right]=x^{\infty}$$

Artwork inspired by the science project Understanding the Origins of Glass, 2010

Located in the entrance of Research Unit "Glass and Ceramic for the Arts" – VICARTE

Figure 12. → 9th Orbital to the South, 2009

Published in the New Glass review 32 of the Corning Museum of Glass, New York USA
An annual survey for recent developments of art and architecture in glass

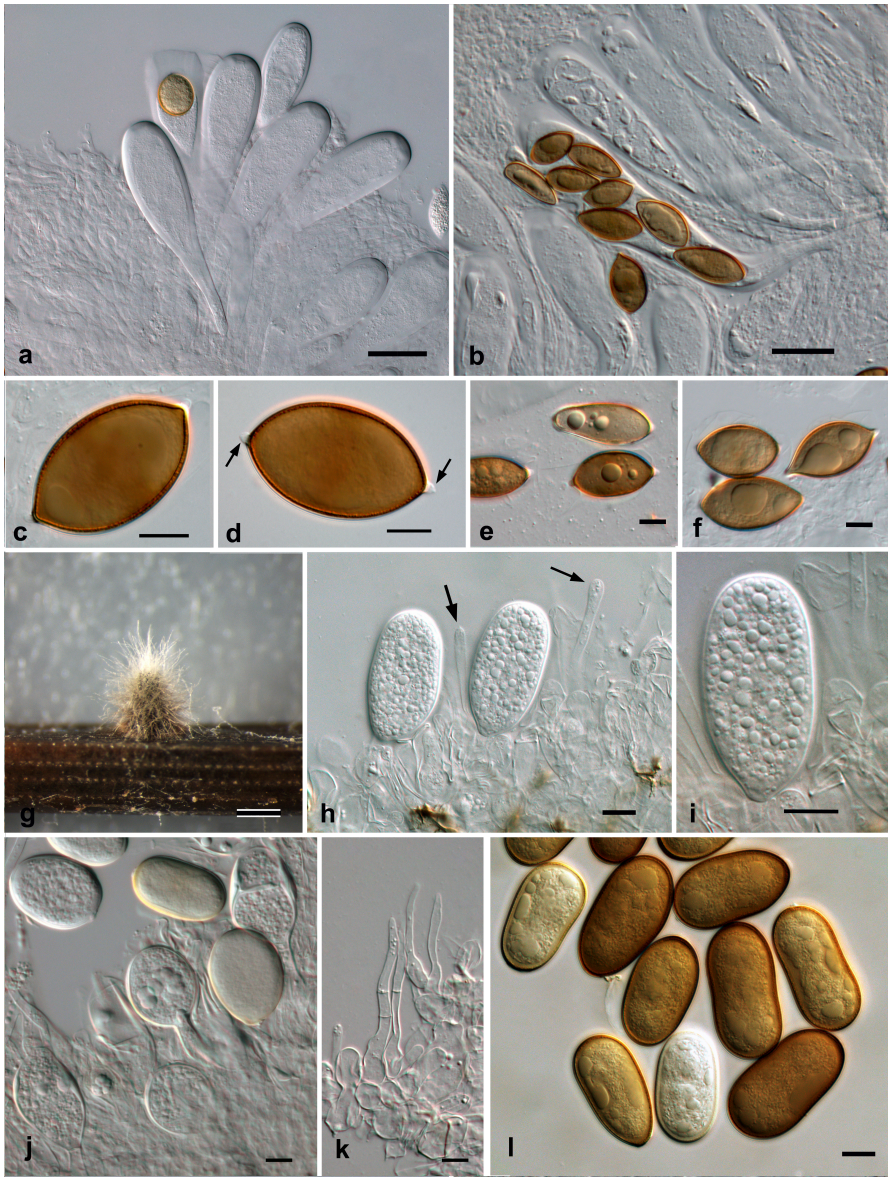

Figure 13. → *Phaeobotyosphaeria visci*. 2009

a–f: CWU (MYC) AS 2271; g–l: CBS 122527. a. Immature asci; b. mature ascus with brown, aseptate ascospores; c–f. brown, aseptate ascospores with apiculi (arrows); g. conidioma formed in culture on a pine needle; h, i. conidia formin on conidiogenous cell between paraphyses (arrows); j. developing conidia; k. paraphyses; l. conidia. Scale bars: a,b = 20 µm; c–f, h–l = 10 µm; 9 = 50 µm

Alan J.L. Phillips

Figure 14. → Micrographia poem, 2011

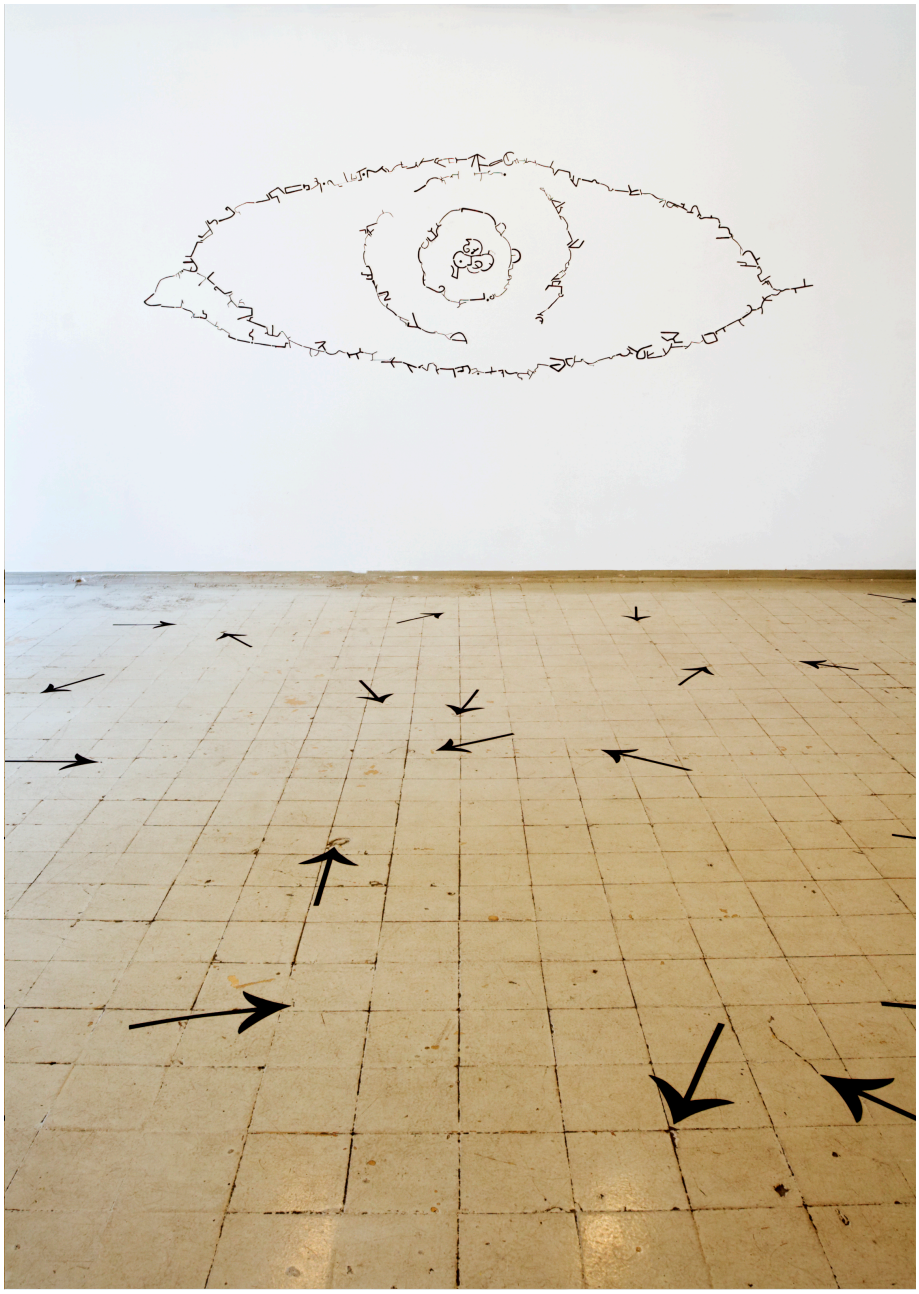

Figure 15. → Mother EYE and The Confused Arrows, 2011

Drawing of 4m x 2m on the wall, made of hand painted and glass symbols with red words of wisdom
Black felt arrows stuck on the 10m x 10m floor

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[22] Quote from Martlew, David. Glass technologist and friend

TARA MARISA WOUDENBERG

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CURRICULUM VITAE

2009-2011
Master of Glass, Art and Science Faculty of Science and Technology at the New University of Lisbon (PT) Research Unit VICARTE “Glass and Ceramic for the Arts”

1999-2006
Assistant-glassblower studio De Oude Horn Acquoy (NL)

1997–2001
Bachelor of Arts Academy for Art and Design ’s-Hertogenbosch (NL)

1994-1997
MBO-education Social Pedagogic Work Utrecht (NL)

1990-1994
MAVO-education Leerdam (NL)

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Solo Exhibitions:

2011	Thesis exhibition EYE INSIGHT Lisbon (PT)
2010	'Be Aware Everything is Always Moving' Installation after six months education Glass, Art and Science New University of Lisbon, Monte de Caparica

Group Exhibitions (selection)**:**

2011	D'Art Química, Library Faculty of Science and Technology (PT) More Art Faster, Master of Glass, Art and Science students at the New University of Lisbon, Monte de Caparica (PT) 'GLASSARTE', A IMARGEM 10 Master of Glass, Art and Science students (PT)
2009	'CONSTRUCTIONS', Gallery AD & Consultancy (international group exhibition) (BE) Gallery Besselaar Contemporary Art, Utrecht Gallery A d K Actuele Kunst, Amsterdam (NL)
2008	Knowlegde Of Taste, Temporary Art Centre Eindhoven Gallery A d K Actuele Kunst, Amsterdam (NL) Skin Deep located in Fort Asperen (NL) (international group exhibition) Art Amsterdam, presented by gallery AdK Actuele Kunst (International Art Fair) Hommage to Willem Heesen, The Gorcums museum

Solo and duo Exhibitions:

2009	International Glass Art fair Leerdam (solo exhibition) National Glassmuseum Leerdam (NL) (outdoor installation of 40m x 7m x 5m) National Glassmuseum Leerdam (NL) (solo exhibition)

Prizes:

2011	University Achievement Award for the course year 2009/2010 Talent award of the Jutta Cuny-Franz Foundation, Glasmuseum Hentrich, Stiftung Museum Kunstpalast (DE)
2009	Bernardine de Neeve Glass-prize 2011 **2009 nomination** (NL-BE)

Scholarships/Grants:

2011	Alexander Tutsek Stiftung Munich, Germany Stichting Stokroos Utrecht, The Netherlands Pilchuck Glass school financial aid summer workshop 'Methods of Molten Madness', Shunji Omura (JP)
2010	Bert van Voorden Fonds and Lions Club Leerdam, NL 2010 – 2011 Master of Glass, Art and Science education Vereniging van Vrienden van Modern Glas, NL 2010 2011 Master of Glass, Art and Science support
2009	Bert van Voorden Fonds and Lions Club Leerdam, NL 2009 – 2010 Master of Glass, Art and Science education Vereniging van Vrienden van Modern Glas, NL 2009 – 2010 Master of Glass, Art and Science support Stichting Stokroos Utrecht, NL Glass Art Society 39th Annual Conference: Local Inspiration, Global Innovation. Corning, New York, USA.

Commissions:

2010	Municipality of Leerdam (NL) 8 works Private collection: 'LoveLife' and 'Burned landschapes' 2009 National Glassmuseum Leerdam (NL) sculpture 'Wee je Gebeente!' HSB Haaften (NL) Mouthvase and free glassssculpture
2007	Actelion Benelux commissioned by RAM Design Asperen (NL) glass sculpture 'Passion' produced in Glass Centre Leerdam
2006	KleurrijkWonen Glass wall Open Door (NL)

Collected work:

1999-2011	Private collections in Europe and USA
2011	Faculty of Science and Technology, New University of Lisbon: BONDING (PT)
2010	Municipality Leerdam: Bevlogen Eigenheid (NL)
2009	Het Glazen Huis Lommel: New Free Uit (BE)
2007	Artotheek The Hague: Black Moving Mouthvase (NL)
2004	National Glass museum Leerdam Yellow/alabast Spacewatcher (NL)

Workexpereince:

2011	Gaffer for graduation work Fernanda Guerreiro, PT Gaffer for graduation work Jamie Wilson Goodyear, CA Assistant of Dawson, R. Kelogg from Columbus College of Art & Design (CCAD), USA Workshop Paul Marioni (USA) sandcasting and constructive dialogues Watching the workshop from Cesare Toffolo (It) flameworking Teaching assistant beginners glassblowing class in collaboration with Carlos Pantana, Professor of Materials Science and Engineering Penn State University and David Babb, Assistant Professor/Research Associate, Department of Meteorology, College of Earth and Mineral Sciences (USA)
2010	Assistant of Michael Rogers (USA) and Robert Wiley (USA) collaborate artwork dedicated to VICARTE Glassblowing demo for The Lions Club Leerdam (NL) Second semester Science project with Jamie Wilson Goodyear (CA) and Kojiro Toyoda (JP): Understanding the Origins of Glass, coordinated by Marcia Vilarques (PT) and Andreia Ruivo (PT) Workshop Teresa Almeida (PT) Pâte de verre Two weeks working in Crisform, Marinha Grande (PT) professional trainings center for the glass sector Three day workshop Marcia Ventura (PT) Layer By Layer technique Workshops: sand casting, enameling, adhesives, plaster silica mold-making, glass cutting, (laser) engraving, colored lackers, grinding and glassblowing techniques with teachers Richard Meitner (NL), Michael Taylor (USA) and Robert Wiley (USA) Workshop Pedro Fortuna (PT) Azulejos, Portuguese tiles and metal oxides Workshop Chris Taylor (USA) -experimenting with Borosillicate and Soda-Lime glass -stretching glass and individual art talk Teacher master class for art students from art academy Breda and ‘s-Hertogembosch (NL)

Work experience (selection):

2009	Demonstration glassblowing at VICARTE for ICOM members (PT) Glassblower De Glasblazerij Leerdam (NL) Assistant for Jirí Pacinek and his assistant Adam Chalupa Lindava (CZ)
2008	*Glassexpedition to Sweden*, Orrefors, Afors, Kosta and Transjö Art lecture at Riks Glas Skola in Orrefors (SE) International Meeting of Young Glassblowers in Glassworks 'U Hluboké' Ceské Budejovice (CZ) Assisted by master glassblowers Henk Verweij (NL) and Robbert Lenner (CZ) blowing organs in Glass Centre Leerdam for international exhibition in Fort Asperen (NL) Gaffer in Glassworks 'U Hluboké' Ceské Budejovice (CZ) Construct monumental mozaïk for Arno Coenen (NL) Teacher master class for art students from art academy Breda at The 'Vrij glas' studio in Zaandam (NL)
2007	*University Sunderland, Glass and Ceramic department (UK)* Demonstration glassblowing, art lecture and teacher Teaching hot glass to graduation students IKA, Mechelen (BE) Assistant for Richard Price and Gareth Noel Williams in glass studio Van Tetterode Amsterdam
2006	Glass-education-project with primary school children in cooperation with Artoteek The Hague (NL)
2005	*Glassexpedition to Australia and New-Zealand* The Jamfactory in Adelaide; assistantship and my own work Glass studio Doc 21 (Melbourne) assistant for Mark Douglas, Miles Johnson and David Herbert, gråletechnique Glass studio Freeformed managed by Phil Stokes; teacher beginners class glassblowing together with Ruth Allen and Jess Fisher; worked with Kumiko Nakajima (JP) Studio Tangerine managed by Elizabeth Kelly (Canberra), assistant for Simon Maberley and Janis Vitkovskij Glass studio Flame daisy (Nelson NZ); assistant for Anthony Genet *Universal College of Learning, Glass and Ceramic (Wanganui) (NZ)* Demonstration glassblowing and art lecture

Presentations:

2011	Fernão Mendes Pinto Secondary School Almada (PT) 'EYE INSIDE' and the making of my new work Faculdade de Ciências e Tecnologia - Universidade Nova de Lisboa (PT) EYE INSIDE, explorations from Oktober 2010 until February
2010	Fernão Mendes Pinto Secondary School Almada (PT) 'I want to work with monkeys, mama.' Lions club Leerdam (NL) 'Free astonishment, gentle enrichment and self-reflection.' Municipality of Leerdam (NL) 'An introduction to impassioned originality.'

Publications:

2011	New Glass Review 32, The Corning Museum of Glass page 58 (USA) Newspaper Rhein-Bote, Jutta-Cuny Franz Talent Award (DE) FJOEZZZ glass magazine Tara Woudenberg'Experimenting and be astonished – there is life for'
2010	Newspaper Het Kontakt Dieper doordringen in het glas Newspaper AD Rivierenland 'Tara Woudenberg ontwerpt geschenk Leerdamse Raadsleden'
2009	Newspapers Het Kontakt and Extra Nieuws 'Tara Woudenberg finds sponsors for her education in Portugal' FJOEZZZ glass magazine Tara Woudenberg FJOEZZZ glass magazine 'Tara Woudenberg goes to Portugal'
2008	10 years gallery AdK Temporary Art Skin Deep catalogue De Oude Horn and the emancipation of glass Gewoon Leerdammer
2007	Actelion Passion for Patients FJOEZZZ glass magazine 'Tara Woudenberg makes glass wall' New Guard & young Fellows, 'The in-between generation of Studio glass artists' By the Dutch Association of Friends of Modern Glass Algemeen Dagblad 'Dit is mijn eerste opdracht, spannend' Het Kontakt 'Scheuren zorgen voor nieuwe ruimtes'
2005	Culturen in Contact II by Museum Het Oude Raadhuis